NOTES ON THE CENTRAL NERVOUS SYSTEM OF REPTILES.

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I. On a lateral fibrous cord in Ophidians and Saurians, the homologue of the ligamentum denticulatum.

In carmine-stained cross-sections this structure is seen as a dark oval object between the membranes, just above the ventral roots. When the membranes are removed before section, a deep depression is left in the outline of the myelon, marking the position of the ligament. Longitudinal sections show that it is composed solely of fibrous tissue.

These statements apply to the myelon of serpents. It has been present in seven different species which I have examined, including the rattlesnake, moccasin, and black snake (Gopher) of the South. Its development was found to be alike in all the species examined, and in all, it extended from the extreme caudal end of the myelon as far forward as the fourth ventricle. The same structure is also seen in Anolius Carolinensis, the skinks, horned toads, Heloderma, and the alligator, but developed to a much less degree than in serpents. In the horned toad, throughout the spinal cord, it is but rudimentary, and the same is true of the dorsal region of the alligator. I have not found a trace of it in any of the Chelonia, not excepting the caudal region of the snapping turtle-Chelydra serpentina.

Reissner[1] does not seem to have found it in the lamprey (Petromyzon fluviatilis), and Grim[2] does not mention nor figure it in his work on Vipera berus.

II. On a normal ventro-dorsal compression of the myelon at the acute angle made by the articulation of the last cervical vertebra with the carapax in Cistuda Carolina (Holbrook), box turtle. In this animal the ventral surface of the carapax is very deeply and abruptly concave, and during the complete retraction of the neck and closure of the cephalic portion of the plastrum, the articulating surface of the body of the vertebra named, encroaches upon the vertebral canal, causing a marked change in shape of the myelon at this point. In cross-sections the entire lateral masses of gray matter are seen separated from each other by an interval considerably greater than at any other plane of section. The ventral horns stretch out laterally, terminate in pointed extremities, and contain but few ganglionic bodies, although at a plane just behind the cervical enlargement. In the dorsal part of the spinal cord, just in front of the lumbar enlargement, there are, in the ventral horns, many cells with large nuclei, although in general conformation these horns resemble closely those of the middle of the pars dorsalis.

Other Chelonians, with much the same abruptness in the curvature of the carapax, and with a retractile neck, have spinal cords flattened at the region above indicated, but probably never to the same extent as in the box turtle with its movable plastrum.

III. The optic chiasm of Anolius Carolinensis—American chameleon.

In six brains from this species which I have examined, the optic nerve of one side was plainly seen to enter a slit-like opening in the nerve of the other side, and apparently to traverse the latter by one and the same slit, bodily, as in the herring, according to Wagner.[1] Thin longitudinal sections show a complete crossing of fibres, but the nerve does not perforate the other bodily, but divides into three or four large bundles, which form a chiasm with equally large bundles from the nerve of the opposite side. In three of the five specimens, it was the right nerve which seemed to perforate the left. In the other two specimens these conditions were reversed. I have seen this external appearance of the chiasm in no other reptile. Goux[2] found that in the true chameleon the optic nerves were "plutôt accolés que croisés l' un sous l' autre," while, as stated in his communication, Dugès, in his comparative physiology, asserts: "chez le caméleon le nerf gauche semble traverser tout entier le nerf droit."

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[1] "Beiträge zur Kenntniss vom Bau des Rückenmarkes von Petromyzon fluviatilis L.," von Prof. Dr. E. Reissner in Dorpat *Arch. f. Anat. u. Phys.*, 1860, s. 545.

[2] "Ein Beitrag zur Kenntniss vom Bau des Rückenmarkes von Vipera berus Lin.," von J. Grim. *Arch. f. Anat. u. Phys.*, 1864, p. 502.

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[1] Dalton's Human Physiology, p. 519.

[2] Transactions of "Soc. de Biologie," 1856. I am indebted to an extract made by Prof. Seguin.